



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of

Hisashi OHTANI et al.

Serial No. 09/197,767

Filed: November 23, 1998

For: SEMICONDUCTOR DEVICE

AND PROCESS FOR

PRODUCING THE SAME

) Art Unit: 2814

) Examiner: P. Cao

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CERTIFICATE OF MAILING

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**RESPONSE**

Honorable Commissioner of Patents  
Washington, D.C. 20231

Sir:

The Official Action mailed May 29, 2002 has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time* which extends the shortened statutory period for response to September 29, 2002. Accordingly, Applicant respectfully submits that this response is being timely filed.

Applicants note with appreciation the consideration of the Information Disclosure Statements filed on March 16, 2000; June 14, 2000; October 19, 2000; January 31, 2001; October 31, 2001; and February 28, 2002. Applicants respectfully request consideration of the Information Disclosure Statement filed on June 13, 2002.

Claims 1-6, 9, 10, 15, 16, 22-27, 40 and 46-74 are pending in the present application, of which claims 1-6 and 48-50 are independent. For the reasons set forth in detail below, these claims are believed to be in condition for allowance.

Paragraphs 4-9 of the Official Action reject claims 1-5, 16, 22-27, 40 and 46-74 as obvious based on U.S. Patent 6,081,305 to Sato et al. in view of one or more of the following patents: U.S. Patent 5,706,064 to Fukunaga et al., U.S. Patent 5,990,542 to Yamazaki, and U.S. Patent 6,097,453 to Okita. The Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or

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motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Specifically, Sato does not teach or suggest a semiconductor device with both a pixel electrode and an embedded conductive layer provided to fill a contact hole with a top surface flush with a top surface of an interlayer insulating film. The Official Action asserts that Fig. 2 of Sato discloses that "the embedded conductive layer 171 and the second conductive layer 181 are two different conductive portions" (Paper No. 25, p. 11). The Applicants respectfully disagree. Reference number 171 in Sato refers to a through hole (col. 15, line 4) and not an embedded conductive layer. Sato discloses a third metal layer 180 formed on the third insulating layer 170 which penetrates the insulating layer 170 to contact the second metal layer 160 (col. 14, lines 19-21). As such, the third metal layer 180 of Sato includes the portion which fills the through hole 171. Therefore, Sato does not teach a semiconductor device comprising both a pixel electrode and an embedded conductive layer.

Furthermore, Fukunaga, Yamazaki and Okita do not cure the deficiencies in Sato. Nothing in the prior art, either alone or in combination, suggests dividing the third metal layer 180 of Sato into a reflective pixel electrode and an embedded conductive

layer provided to fill a contact hole with a top surface flush with a top surface of an interlayer insulating film.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-5, 16, 22-27, 40 and 46-74 under 35 U.S.C. § 103(a) is in order and respectfully requested.

Paragraphs 10 and 11 of the Official Action reject claims 6 and 15 as obvious based on the combination of Yamazaki and U.S. Patent 5,948,705 to Jun, and claims 9 and 10 as obvious based on the combination of Yamazaki, Jun and Fukunaga. The Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Yamazaki and Jun or to combine reference teachings to achieve the claimed invention. Specifically, the Applicants respectfully submit that there is no teaching in the prior art to teach or suggest how the interconnection line of Jun would be used in lieu of the pixel electrode of Yamazaki.

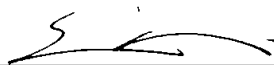
Even assuming motivation could be found, the Official Action has not given any indication that one with ordinary skill in the art at the time of the invention would have had a reasonable expectation of success when combining Yamazaki and Jun.

The Applicants further contend that even assuming, *arguendo*, that the combination of Yamazaki and Jun is proper, there is a lack of suggestion as to why a skilled artisan would use the proposed modifications to achieve the unobvious advantages first recognized by the Applicants. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

Accordingly, reconsideration and withdrawal of the rejection of claims 6, 9, 10 and 15 under 35 U.S.C. § 103(a) is in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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2814

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	<b>Application Number</b>	09/197,767
	<b>Filing Date</b>	November 23, 1998
	<b>First Named Inventor</b>	Hisashi OHTANI et al.
	<b>Group Art Unit</b>	2814
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ENCLOSURES (check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosures 1. 2. 3. 4. 5. 6.
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<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 50-2280 for the above identified docket number.		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Eric J. Robinson, Reg. No. 38,285 Robinson Intellectual Property Law Office, P.C. PMB 955 21010 Southbank Street Potomac Falls, VA 20165
Signature	
Date	9-30-02

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